Different Setting, Different Care: Integrating Prevention and Clinical Care in School-Based Health Centers

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School-based health centers (SBHCs) are widely credited with increasing students' access to care by making health services affordable and convenient.

SBHCs can also provide a qualitatively different type of health care for children and adolescents than that delivered by community providers. Health services offered in a school setting can integrate clinical care with public health interventions and environmental change strategies. This ability to reach outside the walls of the exam room makes SBHCs uniquely positioned to address the multiple determinants of health.

We describe innovative California SBHC programs focusing on obesity prevention, asthma, mental health, and oral health that represent new models of health care for children and adolescents. (*Am J Public Health.* 2010;100:1592–1596. doi: 10.2105/AJPH.2009.186668)

ALTHOUGH INSURING THE 8.1 million uninsured children in the United States is a critical first step, improving children's and adolescents' health requires going beyond insurance coverage and providing better access and preventive services. Obesity, adolescent pregnancy, dental disease, uncontrolled asthma, and many mental health conditions are serious child and adolescent health concerns whose amelioration requires a combination of clinical services and preventive strategies. The pediatric health care system falls far short in the delivery of preventive care.[1,2] A recent study examined pediatric medical records for 175 indicators of quality care defined by an expert panel of physicians. Adherence to these quality standards was 67.6% for acute care but only 40.7% for preventive care, dropping to 34.5% when only adolescents were considered.[3]

Many authors have highlighted the need to tackle the multiple determinants of children's health. The resiliency paradigm emphasizes the importance of supportive environments and psychosocial skill development as protective factors mediating both adolescent risk behaviors and health outcomes.[4] The life course health development framework points to the importance of biological, behavioral, social, and economic determinants of health status that require integrated health interventions.[5] Most recently, with the growing obesity epidemic, we are seeing increasing attention to environmental determinants of health such as opportunities for physical activity and access to produce. A successful system for children's health requires a multisector approach that integrates medical, public health, educational, and social services—sectors that today remain an uncoordinated patchwork of categorical programs.[6]

The ability of school-based health centers (SBHCs) to increase access to health care has been well documented.[7–9] SBHCs, which deliver primary medical and mental health care, increase access and utilization by providing health care in a location that is convenient for students and their families. Less well recognized, however, is that health care services can be qualitatively different in an SBHC than they are in a community provider's office. Because of their unique location, SBHCs have the potential to implement health care models for children and adolescents that fully integrate prevention—primary, secondary, and tertiary—into clinical care and that address biological, behavioral, social, and economic determinants of health. We describe 4 school-based programs that exemplify this integration of clinical and preventive care and discuss opportunities for expanding these innovative models.

PROFILES OF 4 INNOVATIVE SCHOOL-BASED PROGRAMS

The school setting is a crucial factor in the ability of SBHCs to integrate multiple levels of prevention into clinical care. We chose 4 programs in California as examples of SBHCs that have maximized the value of their location in a school. The care they provide is not simply better access to the same care a community pediatrician would provide, it is health care that reaches outside the exam room to better address the myriad determinants of children's and adolescents' health.

Obesity Prevention

Edison High School in Stockton serves 2500 students, 57% of whom qualify for free or reduced lunch. The student population is ethnically diverse: 50% Hispanic, 30% Asian, and 14% African American. In 2003, a survey conducted by the University of the Pacific, Stockton, of physical fitness scores in high school physical education classes, which included a sample of 304 Hispanic ninth graders, found that 1 in 4 high school freshmen were obese or at risk for obesity. Furthermore, obese children in the survey had significantly lower school attendance and lower test scores compared with their nonobese peers. These findings prompted Edison's SBHC to start an obesity prevention and reduction program in 2004 called Healthy Hearts.

To recruit students for the program without creating a sense of stigma, the SBHC began with broader school-based screenings of height, weight, and blood pressure. Health center staff conducted presentations in classes, encouraging all students to come in for a physical. As an incentive,

each student who complied received a T-shirt conforming to the school's physical education dress code, which normally would have to be purchased by the family. In addition, students who wished to participate in a popular salsa dance club were required to enroll in the health center and record their height, weight, and blood pressure.

Through these outreach efforts, the SBHC identified students who had a body mass index at or above the 85th percentile or blood pressure at or above the 90th percentile (in 3 consecutive readings) and approached them individually about Healthy Hearts. Fifty-five students were recruited to the program. Before beginning the intervention, each student received a baseline health assessment; the students considered to be at highest risk also had blood drawn for lipid panels. An innovative component of the program was the inclusion of mental health screenings that identified underlying issues that may not have been picked up in a traditional clinical setting. Counselors assessed for depression, safety issues, and substance abuse. Approximately 10% of the participants needed additional mental health services, which were integrated seamlessly into the other services the students received in the program.

All participants met with a clinician to create a plan for their personal nutrition and physical activity. Physical activities such as yoga, salsa dancing, and conditioning were provided after school. Because of their proximity to the students, SBHC staff were able to monitor the students to keep them engaged in the program and to resolve obstacles to continued participation. For example, health center staff called students out of class if they missed an appointment, and students could easily check in regularly to talk about why they were not able to attend exercise classes or what foods they had available at home. Free Lunch Fridays were weekly workshops in which participants came to the clinic during the lunch hour, were provided with healthy foods, and learned how to prepare nutritious meals.

The program reached families through workshops held after popular school events such as student performances. A registered dietician provided Spanish-language instruction on healthy eating, cooking, and reading nutrition labels. Family members of all ages were encouraged to attend, and Healthy Hearts provided food for everyone. As an incentive, the SBHC partnered with teachers to offer students extra credit in 1 of their core classes if their parents attended the workshops. Approximately 50% of participants had at least 1 parent participate. At the end of 1 year, program coordinators conducted an internal evaluation and found that 60% of the students who participated in Healthy Hearts for the entirety of the 2004 to 2005 school year (51 of the original 55) had lowered their body mass index score, with a mean reduction of 0.9 points.

Mental Health Care and Social Change

In 1999, the James Morehouse Project (JMP) was founded to provide health services, mental health care, and youth development opportunities at El Cerrito High School in El Cerrito, California. JMP was initiated by a history teacher who observed that her ability to teach was severely challenged by the many health and psychosocial issues of her students. The majority of the school's 1400 students are from low-income communities in Northern California with high rates of violence and trauma.

In 2006, a social work intern alerted her supervisor that 6 of the students she was counseling individually, all of whom were African American, were raising issues related to race at the high school. The supervisor suggested that the intern invite her clients with these concerns to take part in a group conversation on racial issues at school. This approach was feasible because the therapy sessions took place on the same school campus where the problems occurred and needed to be addressed. The social justice orientation of the mental health program at the JMP encourages clinicians to see clients as change agents and to focus on social and environmental conditions rather than individual pathology.

All of the 6 students agreed to participate and were joined by 3 others. The majority had a history of low academic achievement, and many had been disciplined or suspended in the previous year. The group decided to conduct research into attitudes and behaviors related to race—particularly with respect to classroom learning and teaching. Guided by the intern, the students conducted focus groups and surveyed more than 300 of their peers.

When the students presented their findings to school staff, these young people who had felt marginalized for years found themselves offering data and critiques of teaching practices and attitudes they identified as contributing to low expectations and unfair disciplinary treatment. For some of the group members, defiant behavior that led to disciplinary actions in the past found a positive outlet as they became advocates and felt that, for the first time, people were listening to their opinions.

In both written evaluations of student presentations and informal oral feedback, teachers reported that they were more aware of the ways that they unknowingly treated students differently because of race. One teacher commented that the students' insights affected her teaching practice more than anything she learned in her master's degree program. In written evaluations after the presentations, students reported that teachers were more willing to have difficult classroom conversations about issues of racism. Through this innovative extension of clinical mental health services, the JMP created a campus-wide dialogue about race that contributed to an improved school environment.

Managing Asthma

Roosevelt Health Center was started in 1999 at Roosevelt Middle School in Oakland in response to a community needs assessment calling for increased access to adolescent health and support services. This SBHC annually serves more than 800 middle school students, including many immigrants and children of immigrants. In 2001, the SBHC implemented a comprehensive asthma prevention and management program in partnership with Oakland Unified School District called Oakland Kicks Asthma. The program was funded by the Centers for Disease Control and Prevention and led by the American Lung Association of the East Bay.

The SBHC providers collaborated with the school district's facilities department on an indoor air quality assessment. Poor air

quality measurements in classrooms resulted in changes to reduce exposure to allergens and improve ventilation. Most problems were minor (e.g., blocked ventilation ducts, chemicals stored improperly, windows not opened for ventilation), so many solutions were quick and cost little or nothing. The SBHC screened students' families smoking histories to determine the level of secondhand smoke exposure or other allergens in the home. When they identified concerns, they contacted public health nurses to conduct home evaluations and help families reduce triggers.

A second component of the program was early identification of students with asthma. This required support from the school principal and staff. The SBHC organized a presentation at a faculty meeting which opened a dialogue among school personnel about student absences and problems at school caused by poorly controlled asthma. The SBHC then worked closely with the sixth-grade language arts teachers to screen all incoming students for asthma symptoms with an in-class survey.[10] Students with asthma were also identified at registration and by referrals from teachers, office staff, parents, and administrators.

With the SBHC just down the hall from the main office, students and families had easy access to medical providers when any asthma-related conditions arose. Sometimes the clinician went to a classroom or to the school yard to see a student, another way to ensure timely intervention. Many students elected to keep an inhaler in the SBHC and came in to use it at critical times during the day, such as right before they went to physical education class. The SBHC also furnished families with asthma action plans and permission forms for students to carry so that they could self-administer their medications.

All students with asthma were invited to participate in education and management classes at lunchtime, with lunch provided. High school peer educators performed skits to make these classes fun. Evaluation of the classes across the school district found that participating students had fewer activity limitations and emergency room visits than they did before the Oakland Kicks Asthma classes began.[11]

Oral Health Access

California children miss an estimated 847 000 days of school each year because of dental problems.[12] This statistic impelled the Santa Barbara County Office of Education to take a leading role in improving children's oral health. Their Health Linkages Program coordinated and provided dental services that emphasized preventive care to children from infancy to age 6 years. Health Linkages identified students from preschools and elementary schools by conducting parent workshops on the benefits of oral health assessment and fluoride varnish and distributing fact sheets and service consent forms. Health advocates, who were trained paraprofessionals, worked with schools and preschools to deliver oral health education. The Health Linkages staff assisted teachers in preschool programs in doing dry toothbrushing with the children and educated both students and parents about oral health. Outreach efforts resulted in more than 5000 children receiving fluoride varnish at multiple school sites in 2008 and 2009; these varnishes were applied by the health advocates under the supervision and direction of the project director.

Health Linkages recruited volunteer dentists to treat, at reduced fees, the many students who needed restorative work. A critical component of this effort was cooperation between the county office of education and public health department, working through the Dental Access Resource Team and the Oral Health Executive Committee. These groups brought together dental providers, community organizations, stakeholders, and leaders in the field of children's oral health to develop the community resources and school and community partnerships necessary to prevent dental disease in elementary and preschool settings, improve access to oral care services for children, and keep students in class.

ADVANTAGES OF THE SCHOOL SETTING

SBHCs provide a place-based form of health care. Rather than serving individual patients who are united by nothing more than their selection of a particular medical practice, SBHCs serve a population of children and families united by a common institution and by the relationships they have with each other and with school staff. As the profiles illustrate, the location of clinical services in a school setting creates unique opportunities to integrate care with primary, secondary, and tertiary prevention.

Primary Prevention

Because children spend a large portion of their waking hours in school, their health can be substantially affected by school policies and environments, both social and physical. Antibullying campaigns, recreation opportunities, sun protection, and health education are all examples of primary prevention strategies that are often successful in schools. The impact of these strategies can be strengthened when clinical care is also provided on the school campus. The Healthy Hearts program demonstrated how a clinical strategy can be used to identify students at greatest risk and provide supportive services that allow them to derive greater benefit from broader environmental and educational strategies, such as opportunities for physical education.

When patients share a connection to a place, it is easier to develop public health approaches that involve education campaigns, group interventions, social action, or environmental change. The Oakland Kicks Asthma demonstrated how clinicians can raise awareness of a health issue and galvanize support for primary prevention, such as indoor air quality assessment. The James Morehouse Project illustrated how experiences in the clinical setting (identification of racial issues) can lead to a focus on the school's social environment. Another clinic in California identified anemia among students as a common clinical problem and responded by providing nutrition education in the classroom and at parent meetings as well as making iron-rich foods more available at school.

Secondary Prevention

Schools are ideal locations for early detection and intervention. The Health Linkages program identified oral health needs by conducting systematic screenings. The Healthy Hearts program used incentives related to the school (T-shirts for physical education) to encourage students to get

screened. Moreover, integrating clinical staff into the school can greatly expand the number of people who contribute to the effectiveness of the health care system. Because school staff have regular contact with students, they are well positioned to identify health concerns such as changes in students' motor skills, affect, class attendance, and behavior that may be early signs of physical or mental health issues. For example:

- A teacher's observation that a student was sleeping in class led to a diagnosis of uncontrolled diabetes.
- An English teacher's attention to a student writing assignment resulted in identification of depression.
- A bus driver's concern about a student stumbling on and off the bus led to the diagnosis of a brain tumor.
- A student's concern about her friend's behavior resulted in detection of sexual abuse.
- Cafeteria workers' observation that the arms of students in the lunch line were marked with cuts and burns led to greater awareness of the extent of self-mutilation and mental health issues.

Training school staff to identify medical and psychosocial issues increases the likelihood that these issues will be detected early. Implementing standardized protocols within the school for referring students to the health center, protecting student privacy, and conducting routine screenings all further maximize the effectiveness of secondary prevention as part of an SBHC.

Tertiary Prevention

Proximity of clinical care to the patient population allows for effective follow-up and case management. The school provides a setting in which a clinician can be deployed promptly and provide immediate intervention. School-based clinicians also have more frequent opportunities to educate students and parents about how to manage health conditions. For example, it is easy for a school-based clinician to call a child back for a brief follow-up to determine if an ear infection has cleared or to ask a diabetic high school student to come back every day for a week to check whether a lesson on how to count carbohydrates has been fully understood.

In a school setting, both patients and clinicians can initiate contact with each other to ask questions, provide updated information, or recheck symptoms. This type of access is extremely difficult to achieve through a community practice, where layers of recorded messages, front office staff, and voice mail boxes often separate patients and providers. Even with today's advanced communications technology, there is no substitute for the ability to talk face to face. This is particularly important for populations such as adolescents, immigrants, low-wage working families, and non–English speakers, who all experience numerous barriers to accessing care.

OPPORTUNITIES FOR INNOVATIVE SCHOOL-BASED HEALTH SERVICES

Public health advocates have long fought for an expanded focus on prevention in health care delivery and policy. Recently, the obesity epidemic has heightened awareness that clinical care alone cannot address what, at one time, was considered a personal health issue. The related increase in type 2 diabetes prevalence calls for improved strategies for chronic disease management. New opportunities for prevention, including new funding for SBHCs, are provided by the 2010 health care reform legislation. All these developments provide new impetus to consider schools, the one institution to which virtually all children are connected, for the delivery of primary, secondary, and tertiary prevention.

Comprehensive preventive care is also integral to the growing efforts to establish a medical "home" for all children. Once this concept connoted merely a physical location where medical records are housed and care is centered, but it has expanded, with support from the American Academy of Pediatrics, to focus on patient-centered coordination of care across a network of community based services.[13,14] SBHCs can be a valuable asset to a pediatric medical home by working with community-based providers to deliver the components of preventive care that are more efficiently and effectively delivered in a place-based setting that is part of families' daily lives. Furthermore, as technologies to facilitate health information exchange go to scale, it will become more feasible to coordinate services provided on a school site with those provided in community facilities, thereby enhancing the medical home with school-based approaches to prevention.

The potential for SBHCs to provide preventive care can only be realized if schools themselves are receptive partners. The unique ability of SBHCs to link health care providers with school staff, students, and families represents a value not only to public health but to education as well. From a public health lens, it is easy to see schools as a useful delivery site for health interventions and forget that for educators, SBHCs are an educational intervention. The climate for health and support services in schools may be improving as federal policymakers embrace a broader view of education than that set forward in No Child Left Behind. This change provides an opening for public health professionals who see the benefit of school-based health services to work more closely with colleagues in education.

SBHCs engage teachers, peers, parents, school staff, and clinicians in preventive health care as well as treatment for underserved children and adolescents. By drawing on the strengths of the health care and educational systems, expansion of this unique model for accessible and comprehensive health services has the potential to effect substantive improvements in health, educational, and life outcomes for American students and their families. ■

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Contributors

S. Clayton conceptualized the essay and was responsible for its completion. All authors gathered information to support the themes of the essay and participated in the writing.

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